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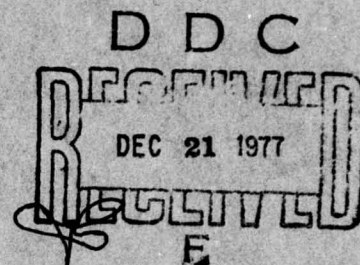
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Life Stress, Depression and Anxiety: Internal-External Control
as a Moderator Variable

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<p>The present study examined the relationship between indices of life change and measures of depression and anxiety as a function of subjects' locus of control orientation. Based on the assumption that life changes may have their most adverse effect on individuals who perceive themselves as having little control over environmental events it was predicted that significant correlations between life change and depression and anxiety would be found only with subjects external in their locus of control</p>			

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orientation. The results of this investigation were in line with this hypothesis. Further, the findings provide support for conceptualizing life stress primarily in terms of negative life change rather than in terms of change per se.

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Life Stress, Depression and Anxiety: Internal-External

Control as a Moderator Variable

In recent years many studies have documented a relationship between life stress, as defined by reported life changes, and a variety of dependent variables including myocardial infarction (1,2), sudden cardiac death (3), seriousness of chronic illness (4), academic performance (5), teacher performance (6), depression (7), and measures of neuroticism and social maladjustment (8, 9). An overview of research in this area has recently been presented by Rabkin and Struening (10).

Despite the large number of correlates of life change that have been reported, it is necessary also to examine the magnitude of the correlations obtained. While often statistically significant, these correlations have usually been of low magnitude suggesting that life stress accounts for a relatively small proportion of the variance in the dependent measures employed. It would seem that life stress measures alone may not be sufficient to yield impressive results. An important question is whether this relatively poor ability to predict relevant dependent measures is due to general inadequacies in existing life stress measures or to other factors.

Concerning the first possibility, it is worth noting that several approaches to the assessment of life stress have been employed in the research carried out. These range from measures which consider positive and negative life changes together (assuming that life change per se is stressful), and employ group derived ratings of events in an attempt to quantify the impact of change (11) to measures which assess positive and negative life change separately and allow for the individualized rating of the desirability and impact of events (12,9). This same pattern of low but statistically significant correlations has been found regardless of the measure employed. While existing

measures of life stress are less than perfect, factors other than inadequacies of measurement might be related to the low correlations which have typically been obtained.

A possible reason for the low correlations between life stress scores and other variables is the failure to consider variables which might mediate the effects of life change. Although it is reasonable to assume that high levels of change have a negative effect on individuals it seems likely that these effects vary from person to person and are mediated by specific individual difference variables. Given the fact that individuals may be differentially affected by life changes, it may be unreasonable to expect to find strong correlates of life stress unless such variables are determined and taken into account.

While there has been relatively little research related to the role of moderator variables in the area of life stress, studies by Nuckolls, Cassell and Kaplan (13) and Smith, Johnson, and Sarason (14) suggest the importance of this line of inquiry. For example, Nuckolls et al., designed their study to examine the relationship between life stress and pregnancy and birth complications. They administered the Schedule of Recent Experiences (11) and a specially designed Psychosocial Assets Scale to expectant mothers during the thirty-second week of pregnancy. This scale was designed to assess the degree to which women possess support systems in their environment. Items on this scale were used to measure the "subjects feelings and perceptions concerning herself, her pregnancy, and her overall life situation including her relationship with her husband, her extended family and the community." (p. 433-434).

These investigators found a significant relationship between life stress and complications, but only for subjects who had low levels of psychosocial assets. Given a high level of life stress before and during pregnancy, women

with favorable psychosocial assets had only one-third the number of complications of women with poor psychosocial assets.

Another moderator variable was suggested by the Smith et al., study. These authors investigated the relationship between life stress and neuroticism in subjects differing in scores on the Sensation Seeking Scale (15). This scale assesses the tendency to seek out stimulating, risk-taking, and novel activities. High scorers on the scale are thought to have a high optimal level of stimulation while those scoring low are thought to have a low optimal level. Thus, low sensation seekers might be expected to avoid change and arousing stimulus input. In this study it was hypothesized that low sensation seekers would be more adversely affected by life stress than high sensation seekers and the obtained findings were in line with this hypothesis. While no significant relationship between life change and neuroticism was found for high sensation seekers, a significant relationship between negative life change and the neuroticism measure was obtained when responses of subjects scoring low on the Sensation Seeking Scale were analyzed. There are, then, clues concerning the variables which might mediate the effects of life change. Further efforts designed to determine the possible role of particular moderators is needed.

One important determinant of the effects of life change may be whether stressful events are perceived as being within or outside the control of the individual (16). In line with this it would seem reasonable to expect that locus of control orientation is a significant moderator variable. Rotter (17) has suggested that individuals differ in the degree to which they perceive environmental reinforcers as being under their personal control, with internals perceiving these events as being under their control and externals perceiving reinforcers as being the result of fate, luck, change or powerful others.

As the locus of control construct seems to reflect the extent to which individuals believe themselves capable of exerting personal control over environmental events one might expect internals and externals to respond differently to life change. The present study was designed to provide information related to this issue by examining the relationship between life stress and measures of depression and anxiety as a function of locus of control orientation. It was predicted that life stress would be related to the dependent measures only with subjects displaying an external locus of control orientation. This prediction was based on the assumption that life change may have its most adverse effects on individuals who perceive themselves as having little or no control over such events.

Method

Subjects

The subjects were (34 male, 90 female) student volunteers, drawn from undergraduate psychology courses at the University of Washington. All subjects received course credit for participation.

Materials

The instruments used in the study were the Life Experiences Survey (LES), the Locus of Control scale, the State-Trait Anxiety Inventory, and the Beck Depression Scale.

The LES (9) is a 57 item scale requiring respondents to indicate events experienced during the previous year, whether they considered these events desirable or undesirable, and the degree of impact the events had on their lives. The scale yields both positive and negative life change scores, although previous research (9) has suggested that the negative change score is more highly correlated with stress related dependent measures.

The Locus of Control Scale (17) is a 29 item self-report measure which assesses the degree to which individuals view environmental reinforcers as being under their personal control. As mentioned earlier, internals are

believed to perceive events as being controllable by their own actions while externals tend to view such events as being influenced by factors other than themselves.

The State-Trait Anxiety Inventory (18) is a 40 item self-report measure which assesses anxiety as a trait or relatively stable dispositional variable and as a state. State anxiety refers to the degree to which persons display anxiety in a specific situation.

The Beck Depression Scale (19) is a 21 item self-report measure which taps a variety of characteristics thought to be symptomatic of depression.

Procedure

These four instruments were administered in a group setting. The LES was scored to yield both positive and negative life change scores. Other measures were scored using standard scoring procedures.

As a preliminary analysis suggested a significant correlation between negative life change and locus of control scores, $r(124) = .22$ $p < .01$ partial correlations were employed to determine the relationship between measures of life change and measures of depression and anxiety, with the variance common to locus of control scores partialled out in each case. Separate analyses were accomplished for internals and externals. In this way it was possible to test the prediction that life stress would be significantly associated with the dependent measures only when persons who were external in their locus of control orientation were considered.

Results and Discussion

Partial correlations between measures of positive and negative life change, derived from the Life Experience Survey, and measures of depression and anxiety are presented in Table 1. The correlations for subjects internal ($IE \leq 12$) and external ($IE \geq 13$) in their locus of control orientation are presented separately.

Insert Table 1 about here

As may be seen no significant relationships were found between measures of positive life change and any of the dependent measures. Negative change, however was found to be significantly correlated with measures of both depression $r(55) = .32, p < .005$ and trait anxiety, $r(63) = .31, p < .005$ although these relationships, as predicted, were found only for subjects who were external in their Locus of Control orientation. No significant relationships between life change scores (positive or negative) and measures of state anxiety were found for either internal or external subjects.

These results strongly support the original hypothesis that locus of control orientation may be a moderator variable in the relationship between negative life change and depression and anxiety and provide support for the notion that the effects of life stress may be mediated by the degree to which individuals perceive themselves as having personal control over events. The results suggest that perhaps it is the individual who experiences high levels of change but feels he/she has no control over events that is most susceptible to the effects of life stress. While findings with regard to the state anxiety measure were not consistent with those obtained when indices of depression and trait anxiety were employed, it may be noted that the State Anxiety Scale tends to reflect more transient levels of anxiety which may vary with the situation. Thus the unreliability associated with this state measure may have contributed to the obtained results.

The fact that significant relationships between negative life change and measures of depression and anxiety were found, while no relationships between positive life change and these measures were obtained also provide additional support for the idea expressed by a number of authors (20,9,21)

that life stress may be more fruitfully conceptualized in terms of negative life change than in terms of change per se as was originally postulated by early investigators in this area (11).

In summary, findings of the present study provide support for the view that locus of control, along with sensations seeking (14) and level of psychosocial assets (18) mediates the effects of negative life change.

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Footnotes

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Table 1
Partial Correlations Between Positive and Negative Life
Change and Measures of Depression and Anxiety for Subjects
Differing in Locus of Control Orientation

Locus of Control	Life Change Scores	Dependent Measures		
		Depression	Trait Anxiety	State Anxiety
Internals (N=55)	Positive Change	-.02	-.09	.10
	Negative Change	.10	.15	-.10
Externals (N=66)	Positive Change	-.05	-.11	-.15
	Negative Change	.32*	.31*	.10

* $p < .005$

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